9.—The identity of Mus burtoni Ramsay, 1887 (Rodentia, Muridae, Melomys) from the neighbourhood of Derby, Western Australia

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Abstract

The identity of *Mus burtoni* has remained obscure following its erection by Ramsay in 1887. The type skull and mandible of this species have now been found in the Australian Museum, Sydney. *Mus burtoni* is placed in *Melomys* Thomas, 1922 where it is predated by *Melomys cervinipes* (Gould, 1852) and *Melomys rufescens* (Alston, 1877). It is doubtfully conspecific with the former species and distinct from the latter. *Melomys burtoni* (Ramsay, 1887) is tentatively accepted as a valid species pending more satisfactory knowledge of the genus.

Introduction

Mus burtoni was erected by Ramsay (1887b) for a single rodent specimen received from Derby, north Western Australia. The fragmentary skull and mandible and the feet are illustrated in the original description and skin (or flesh) dimensions listed. The sex is not stated nor is a catalogue number or depository noted. No further specimens have been recorded for *Mus burtoni* and subsequent authors have accepted Ramsay's name for it without comment (Ogilby, 1892 p. 107), indicated that its identity is obscure (Longman, 1916 p. 34; Iredale and Troughton, 1934 p. 75; Ellerman, 1941 p. 214), or ignored it (Tate, 1951). The type skull and mandible of *Mus burtoni* have now been found in the Australian Museum, Sydney. These have been examined and *Mus burtoni* is placed in *Melomys* Thomas, 1922.

Melomys burtoni (Ramsay, 1887)

Holotype: Australian Museum No. S427, fragmentary skull and mandible. The skin of the holotype is not registered under this number and has not been found. The holotype was received from T. H. Bowyer-Bower Esq.,† from Derby, north Western Australia. Ramsay does not clearly indicate that the specimen was collected at Derby consequently its locality is recorded here as the neighbourhood of Derby, Western Australia. The moderate wear on the molars of the holotype suggests that it is a young adult.

The holotype skull and mandible are registered in the Australian Museum "S" catalogue as "Rat Skull of". Prior to registration this specimen belonged in the Museum's "old collection". Collector, date of collection, and locality data are not recorded in the catalogue for it, nor is any indication given there that it is a type. Mr. G. P. Whitley, recently retired Curator of Fishes, Australian Museum, has examined the catalogue entry for the holotype and believes it to have been made by Mr. E. R. Waite (personal communication). Registration of this specimen, dated August 12, 1893, was made during Dr. E. P. Ramsay's Curatorship of the Australian Musuem (September 22, 1874 to December 31, 1894). The skull and mandible are accompanied by an unattached label (pill-box top), shown in figure 2, M. The initials "G. H. B." at the top of the label are the same as those of G. H. Barrow, the artist who produced the illustrations for Ramsay's paper on *Mus burtoni*. The words following "6" at the bottom of the label are difficult to read but may be "times abt."—Ramsay's published figures of the skull and lower molars of the holotype of *M. burtoni* are noted by him as being 6 times natural size. "B Bower" and "Derby" are written in pencil on the right hand side of the label. Two Australian Museum numbers, S427

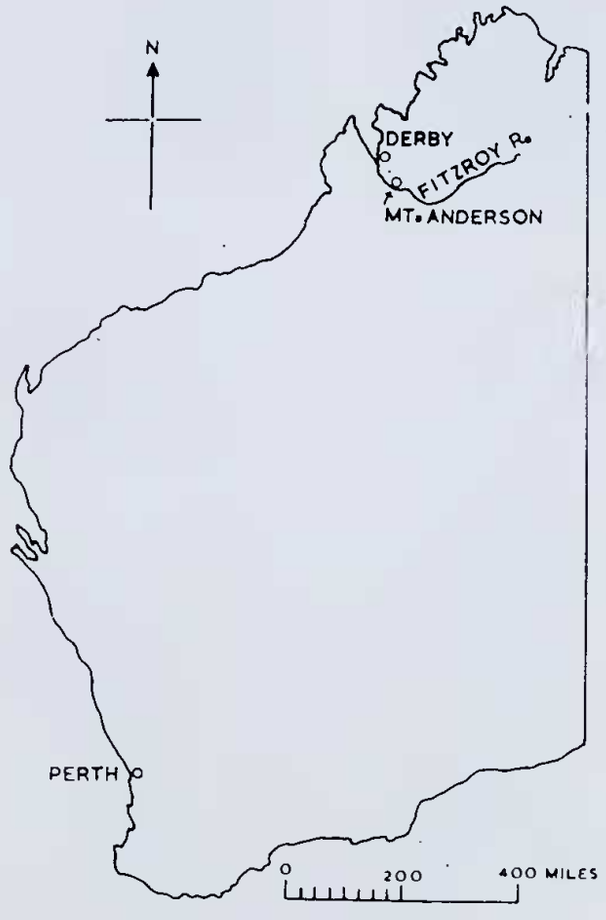

Figure 1—Locality map; Western Australia.

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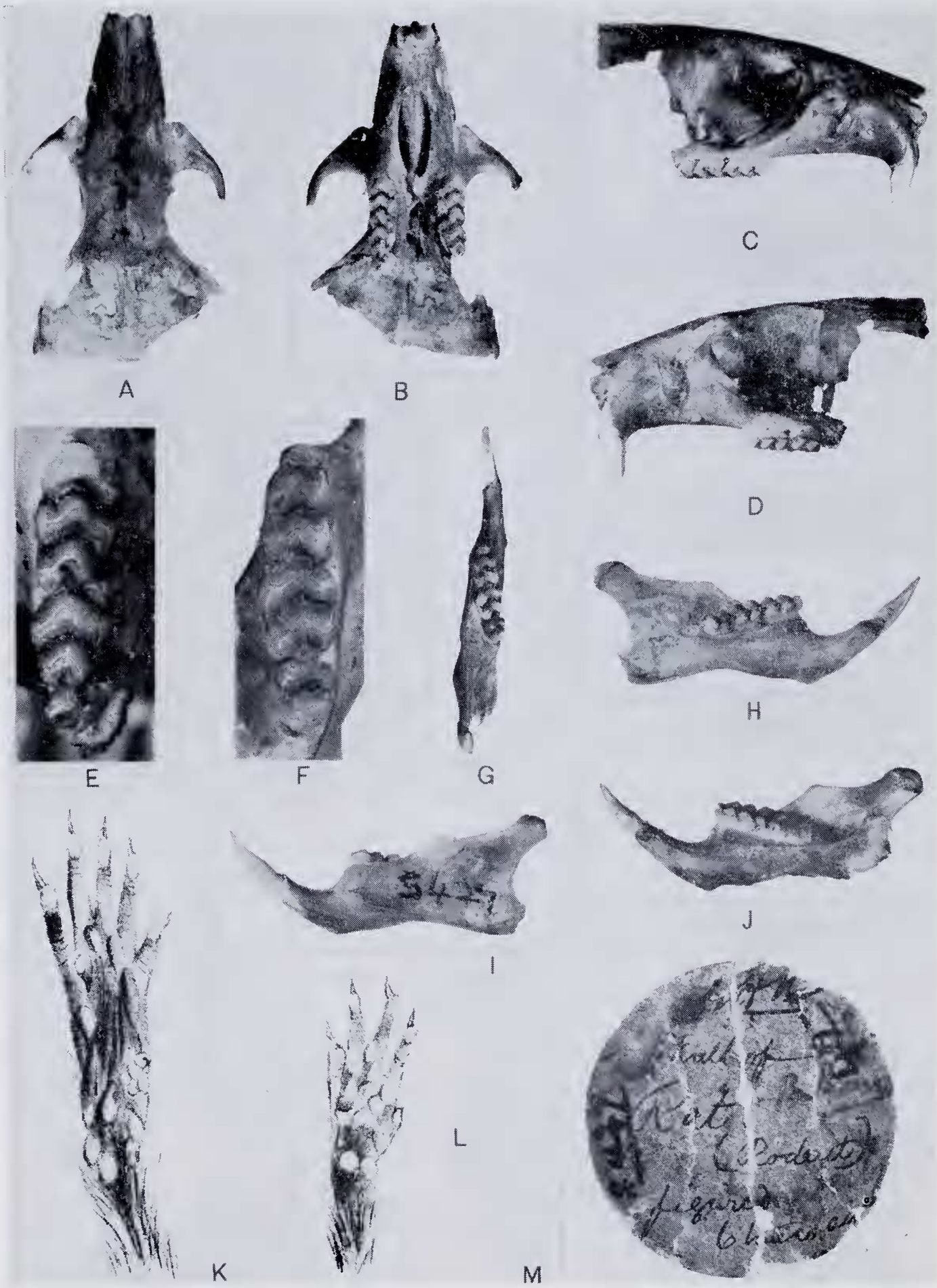
† Thomas Henry Bowyer-Bower accompanied by a taxidermist, Walter Burton, left Sydney early in 1886, and collected in north-western Australia, up the Fitzroy River as far as Mount Anderson (see fig. 1). He then collected on Thursday Island, off Cape York, and at Palmerston in Northern Territory, where he died of typhoid fever on December 22, 1886. (auth. Whittell, 1954, Pt. 2, p. 71).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and 427, are also included on it. One, at least, of these numbers was apparently written on the label by Waite at the time of registration while the second number may have been added later. Other writing on the label agrees with that of Ramsay (see Whittell, 1954 Pt. 1 Pls. 29, 30 for a sample of Ramsay's handwriting).

The Australian Museum skull and mandible (S427) agree well with Ramsay's figures of *Mus burtoni* if allowance is made for some latitude in their production, and if the illustration of the skull is a mirror image of the original. Ramsay's figure 2 shows the presence of a left third molar but this is the only tooth now missing from S427. This must have been missing from the skull when Ramsay had it, otherwise Ramsay could not have described it as having a portion of the dentition.

One further rodent, the holotype of *Hapalotis boweri* Ramsay, 1887 from "North West Australia", is recorded by Ramsay (1887a) as having been received by him from Bowyer-Bower. The skull of this specimen cannot be found and may not have been sent to Ramsay (see Ramsay, 1887a p. 1154). It is not figured in his paper on *H. boweri* and does not comply with data on the label accompanying S427.

The above details, considered together, justify recognition of S427 as the holotype skull and mandible of *Mus burtoni* Ramsay.

Specimens examined: Holotype.

External characters: Ramsay notes that the chief characteristic in this species is its remarkably woolly and soft fur, and uniform colour. His account of the external characters is reiterated below but with the measurements, given by him in inches, converted to millimetres:

General colour of a uniform dull ashy-grey or mouse-colour, fur dense, close, thick and soft, of one kind, almost woolly, slightly browner above than on the under surface, which is of a light grey tint; head rather short; ears moderate; tail naked, not quite the length of the body; whiskers black reaching to behind the ears; from snout to eye, 17.8 mm; from snout to ear, 30.5 mm; length of ear 16.5 mm, greatest width 11.4 mm; forearm, 17.8 mm; hand, 11.4 mm; hind foot, 25.4 mm; tail, 104 mm; total length from snout to tip of tail, 226 mm.

Ramsay's figures of the hind and fore feet of the holotype are reproduced in figure 2, K and L.

Skull and mandible: Ramsay did not describe the skull and mandible of the holotype. However, he noted that the former is broken and that only the anterior parts of it with a portion of the dentition is left. M^3 is missing from the left molar row of S427 and the posterior portion of the palate is badly damaged:

Antero-internal angles of nasals broken but fronts of nasals about level with premaxillae; posterior ends of nasals level with backs of nasal processes of premaxillae. Nasals with maximum width subterminal then tapering to their junction with the frontals. Rostrum short, broad, and deep. Lacrymals small. Postorbital ridges present. Dorso-anterior angles of zygomatic plates rounded, about level with anterior edges of bottom halves of plates (anterior edge of left zygomatic plate damaged). Incisive foramina elliptical with rounded ends and with greater part contained in maxillae; left incisive foramen extending to anterior extremity of M^1. Left posterior palatal foramen small, opposite anterior end of M^2. Incisors opisthodont. Molars moderately worn, without accessory cusps.

Angular processes and coronoid regions of mandibular rami broken. Molars without accessory cusps.

Measurements for the holotype are tabulated in table 1. The skull, mandible, and dentition of this individual are illustrated in figure 2, A to J.

TABLE 1

Measurements (in millimetres) for holotype skull and mandible (Australian Museum No. S427) of Melomys burtoni *(Ramsay).*

Length from anterior extremity of nasal to posterior extremity of interfrontal suture	19.0 approx.
Nasal length measured from anterior extremity of nasal to posterior extremity of internasal suture	8.8 approx.
Maximum width across nasals	3.3
Width across nasals between naso-frontopremaxillary points	1.9
Width of rostrum at anterior end of incisive foramina	4.6
Maximum width of rostrum	5.1 approx.
Interorbital width	5.0
Height of skull at anterior extremity of M^1	7.2
Minimum width across zygomatic plate	3.3
Length of incisive foramen	5.2*
Width across incisive foramina	2.0 approx.
Length of diastema	7.7
Width of palate between alveoli of antero-internal roots of M^1	2.9 approx.
M^1 Length x width	3.1 x 1.6
M^2 Length x width	2.2 x 1.6
M^3 Length x width	1.1 x 1.1
M^{1-3} Length	5.8
Length of mandibular ramus from tip of incisor to posterior extremity of condyle measured with ventral surface of ramus horizontal	19.4
Height of condyle above ventral surface of mandibular ramus measured with ventral surface of ramus horizontal	7.5 approx.*
M_1 Length x width	3.6 x 1.5
M_2 Length x width	2.1 x 1.7
M_3 Length x width	1.4 x 1.3
M_{1-3} Length	6.0

Notes: The length and height marked by asterisks were measured on the left side of the skull and mandible; measurements of the other paired structures were taken on the right side of the skull and mandible. Measurements taken by vernier calipers graduated to read to 0.05 mm; tooth measurements do not include roots.

Figure 2 (opposite)—*Melomys burtoni* (Ramsay). A—S427 (Holotype), dorsal view of cranium; B—ventral view of cranium; C—right lateral view of cranium; D—left lateral view of cranium; E—occlusal view of right upper molar row; F—occlusal view of left lower molar row; G—dorsal view of left mandibular ramus; H—lingual view of left mandibular ramus; I—labial view of left mandibular ramus; J—lingual view of right mandibular ramus; K—Holotype, hind foot; L—Holotype, fore foot; M—Australian Museum label accompanying holotype of *Melomys burtoni* (Ramsay). A—D and G—J x2.6 approx.; E & F x8.0 approx.; H, K & L x2 (reproduced from Ramsay, 1887b Pl. 17 figs. 4-5); M x1.3.

Discussion

Twelve species of *Melomys*, including *M. burtoni* (Ramsay), have been recorded from Australia. Except for the Queensland form, *Melomys callopes* Finlayson, 1942, these were erected prior to 1938 when Rümmler published on the New Guinea Muridae. In that work, Rümmler (1938 p. 100) reduced the Australian species to two, *Melomys cervinipes* (Gould, 1852) from Queensland, Northern Territory, and

New South Wales[1], and *Melomys lutillus* (Thomas, 1913) from Queensland (and New Guinea). Both Ellerman (1941 pp. 230-231 & 1949 pp. 87-88) and Tate (1951 p. 292) concur with Rümmler in listing only *M. cervinipes* and *M. lutillus* as the Australian species; but, while Ellerman agrees closely with Rümmler (1938 pp. 116 & 130) in his allocation of the various Australian populations of *Melomys* under these two names, Tate's arrangement is rather different, and it is clear that further work will be required before boundaries can be placed with any certainty about these taxa.

At the time that these authors revised *Melomys, M. burtoni* was not recognized as a species of that genus and since it is an older name than all available names of *Melomys* (excluding *Pogonomelomys*—see under) except *M. cervinipes* (Gould, 1852) and *M. rufescens* (Alston, 1877), the identification of its biological status and affinities is nomenclaturally important. *M. burtoni* is distinct from *M. rufescens,* which is only known to occur in the Bismarck Archipelago, New Guinea, and the Solomon Islands (Laurie and Hill, 1954). Unfortunately, so little is known of the morphological ranges of both *M. cervinipes* and *M. lutillus* that the relationships of *M. burtoni* to either of these Australian species cannot be determined at present. It can only doubtfully be placed within *M. cervinipes* (Gould); therefore I tentatively accept it here as a valid species of *Melomys* but recognize that further material and more detailed studies will probably result in its identification with one or more of the extra-Western Australian populations of *Melomys.* Until now, *Melomys* was not known to occur in Western Australia.

While no species of *Pogonomelomys* are known to occur in Australia this genus is closely related to *Melomys* and should be taken into consideration in discussing the status of *M. burtoni. Pogonomelomys* (type species *Melomys mayeri* Rothschild and Dollman, 1932) was first introduced, as a subgenus of *Melomys,* by Rümmler (1936 p. 248) but was later elevated to full generic rank by Tate and Archbold (1941 p. 5). In doing this, they drew particular attention to the prehensile dorsal tip of the tail, provided with tactile skin, in *Pogonomelomys;* but Harrison (1962 p. 59) has recently noted that the tail tips are partly prehensile in Australian *Melomys* identified by him (1962 p. 57) as *M. cervinipes eboreus* Thomas and *M. lutillus littoralis* (Lönnberg) and the distinction may not be as useful as Tate and Archbold supposed. Unfortunately, the nature of the skin on the dorsal tip of the tail of *M. burtoni* is not mentioned by Ramsay so there is no justification in placing it within *Pogonomelomys;* nevertheless, such characters as it is known to possess do not exclude this possibility, but it should here be noted that of all the species currently placed in *Pogonomelomys* (Ellerman, 1949; Tate, 1951; Laurie and Hill, 1954) only the name *Uromys bruijnii* Peters and Doria, 1876 predates *M. burtoni,* and *U. bruijnii* and *M. burtoni* are certainly not conspecific.

[1]*Melomys cervinipes* (and *Melomys*) has not been known to extend further south than the Hunter River, New South Wales where Gould reported it in 1852. A number of maxillae and mandibular rami, indistinguishable from *Melomys cervinipes* (Gould), are included in the Quaternary red bone deposit of the Pyramid Cave, Buchan district, eastern Victoria (see Wakefield 1960a & 1960b for an account of the bone deposits in the Buchan District) and, if this material is correctly placed here, this rodent has apparently undergone a recent shrinkage in range in south-eastern Australia. These specimens were identified by me subsequent to publication of Wakefield's second paper (1960b) and are not included among the rodent remains recorded therein for the Pyramid Cave deposit. They have now been placed in the palaeontological collections of the National Museum of Victoria and are registered specimens no. P 20673.

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